

MEMORANDUM

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Project #: 23641.0

To: Virginia Elandt, Oregon Department of Transportation
Karl MacNair, City of Medford

From: Matt Hughart, AICP, Matt Bell, and Miranda Barrus, Kittelson & Associates, Inc.

Project: I-5 Exit 30 Interchange Area Management Plan (IAMP)

Subject: Draft Tech Memo #2: Existing Deficiencies

This memorandum summarizes existing deficiencies within the Interchange Management Study Area (IMSA) for the I-5, Exit 30 Interchange Area Management Plan (IAMP). Additional information related to the deficiencies is provided in Tech Memo #2 Appendix A-C and includes information on the land use, population, and demographics inventory, environmental constraints, transportation inventory, and existing conditions analysis.

LAND USE, POPULATION, AND DEMOGRAPHIC SUMMARY

The land use and population analysis has revealed possible challenges and barriers to implementing an IAMP. Planning long-term transportation operations in the interchange area is complicated by several factors identified in Tech Memo #2 Appendix A, including the following:

- General Land Use Plan (GLUP) and zoning designations
- Recent and anticipated development
- Multiple growth forecasts
- Large elderly and minority populations

Land Use

Interchange improvements in the northwest quadrant of the IMSA will be limited by the Parks and School and Greenway GLUP designations and Single-Family Residential and Public Parks zoning. The Bear Creek Greenway is located adjacent to the interchange and provides a connection for the 20-mile long multi-use corridor. The IAMP should identify and propose mitigation for impacts associated with proposed transportation improvements.

Recent development in the southwest quadrant of the IMSA will add to existing commercial demand on the transportation system. Vacant and redevelopable commercial and industrial parcels also exist in the

southwest quadrant of the IMSA that have the potential to develop over the planning horizon and add additional demand to the transportation system. The IAMP should identify interchange solutions to account for existing and anticipated demand associated with this type of development.

Population

Multiple population forecasts have been conducted for the City of Medford showing growth estimates ranging between 1.1% to 2.16% average annual growth. The most recent forecasts, conducted by the Population Research Center at PSU, show less growth in the City compared to the other two forecasts. The challenge for the IAMP project is to “right size” transportation solutions to the anticipated growth and number of future users.

Demographics

The IMSA has a population of approximately 6,000 people. Of that population, there is a larger proportion of elderly and minorities compared to the City of Medford, Jackson County, and the State of Oregon. Because these populations are located near or just outside of the IMSA boundary, it is likely that transportation solutions will have indirect negative impacts to these populations. The planning process should reflect how transportation solutions both impact and benefit vulnerable populations.

TRANSPORTATION SYSTEM DEFICIENCIES

The inventory and traffic operations analysis identify several transportation system deficiencies that should be addressed by the IAMP. The following summarizes the deficiencies at the study intersections and along the study area roadways. For this analysis, OR 62 is referred to as a north-south roadway.

Functional Classifications

There are several discrepancies between federal and City of Medford functional classifications for roadways within the IMSA. These functional classifications are typically updated and aligned as part of local transportation system plans (TSP) or other long-range planning efforts. This is a potential outcome of the IAMP or more likely a task that should be undertaken by the City of Medford as part of its next TSP update.

Pavement Conditions

Within the IMSA, pavement conditions surveys have noted “Poor” conditions along OR 238 and the segment of OR 99 north of OR 238. While likely not a deterrent to future growth or larger interchange area circulation improvements, any identified improvements to roadway segments with poor pavement conditions should reflect assumptions for pavement rehabilitation. It should be noted that there is an upcoming project in the 2021-2024 STIP that will improve safety and travel flow by repaving, repairing the bridge deck and replacing pedestrian ramps.

Bridges and Culverts

Three bridges within the IMSA have been classified as “functionally obsolete”, which means they were built to construction standards that are now considered outdated (e.g. narrow travel lanes, narrow shoulders, etc.) and/or not built to ideally accommodate current traffic volumes. The bridges include:

- I-5 bridge over McAndrews Road
- OR 62 bridge over I-5
- OR 62 bridge over Biddle Road

These designations will be taken into consideration when evaluating potential long-term improvement projects that impact these facilities.

Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities are located along both sides of most roadways within the IMSA; however, there are some gaps and deficiencies that should be addressed as part of future IAMP improvements projects:

- On-street bike lanes generally have 4” stripes, which is more typical of shoulder striping, and some on-street bike lanes do not have bike stencil markings.
- There is a general lack of enhanced bicycle crossings at key locations along the corridor, such as the I-5 ramp terminals.
- There is a gap in the sidewalk network on the northwest side of OR 62 across the Bear Creek Bridge.
- The Biddle Path (between Biddle Road and I-5) needs to be updated and needs a connection.
- There is a general lack of enhanced pedestrian crossing treatments at key locations along the corridor, including most unsignalized crossings.

Access Inventory

There are three driveways within ¼ mile of the I-5 ramp terminals:

- A signalized intersection along OR 62 serving the Rogue Valley Mall.
- A right-in/right-out/left-in driveway along OR 62 serving the Rogue Valley Mall/Target.
- A right-in/right-out driveway along OR 62 serving Fred Meyer.

There are two public street connections within ¼ mile of the I-5 ramp terminals:

- A right-in/right-out public street connection along OR 62 at the Biddle Road jug-handle connection.
- A signalized intersection along OR 62 at Bullock Road.

When considering future infrastructure improvements within the IMSA, all of these private and public street connections should be reviewed from a future safety and operations perspective.

TRAFFIC OPERATIONS DEFICIENCIES

Traffic Operations

The traffic operations analysis indicates that all study intersections currently operate acceptably per their respective mobility standards and targets except the OR 62/Bullock Road-Poplar Drive intersection. The intersection currently operates with an overall intersection v/c ratio of 0.84; however, it operates with relatively high delay at LOS F. This is primarily due to the delay on the minor street (city) approaches. Future growth in the IMSA is expected to impact traffic operations and therefore, should be monitored as part of the future operations analyses.

Queueing analysis

The 95th percentile queues at the following study intersections currently exceed their striped storage, or block upstream signalized intersections, and should be further reviewed and potentially mitigated as part of future operations analyses:

- 2: OR 62-OR 238 / OR 99-Court Street-N Riverside Avenue – the northbound left- and right-turn queues exceed their striped storage and the northbound through queues block the upstream signalized intersection.
- 3: OR 62 / Rogue Valley Mall entrance (west) – the northbound right-turn queue exceeds its striped storage.
- 5: OR 62 / I-5 Southbound Ramp Terminal – the northbound right-turn queue exceeds its striped storage.
- 8: OR 62 / Biddle Road (south end of jug handle) – the northbound through queues block the upstream signalized intersection and the southbound left-turn queue exceeds its striped storage.
- 9: Biddle Road / Hilton Court – the northbound through queues block the upstream signalized intersection and the northbound right-turn queue exceeds its striped storage.
- 10: OR 62 / Hilton Court-Fred Meyer Parking Lot Entrance – the northbound and westbound right-turn queues exceed their striped storage.
- 11: OR 62 / Bullock Road-Poplar Drive – the eastbound right-turn queue exceeds its striped storage.

Multimodal Analysis

There are currently no locally adopted standards related to bicycle, pedestrian, or transit level of service (LOS). However, the analyses highlight potential issues related to the type of bicycle, pedestrian, and transit facilities and services along State and City roadways that should be addressed by the IAMP.

- **Bicycle Level of Service** – several roadways within the IMSA currently have a Bicycle LOS of F. This is primarily due to relatively narrow shoulders and/or on-street bike lanes, high traffic volumes/travel speeds, and multiple unsignalized conflicts, which result in a challenging environment for the majority of bicyclist skill levels.
- **Pedestrian Level of service** – several roadways within the IMSA currently have a Pedestrian LOS of E. This is primarily due to relatively high traffic volumes/travel speeds and a large number of adjacent travel lanes, which contribute to a challenging environment for pedestrians.
- **Transit level of service** – relatively few roadways within the IMSA have transit service, which is required to generate Transit LOS analysis results. The segments that do have transit service show that the service varies from B to F based on the speed and frequency of the service.

Crash Analysis

The five most recent years of crash data available from ODOT's Data and Reporting Unit (January 1, 2013 through December 31, 2017) was obtained and reviewed in an effort to identify potential safety issues. The crash analysis includes a review of crash characteristics, intersection crash rates, critical crash rates, excess proportion of specific crashes, and segment crash rates based on the five years of data. The crash analysis results are summarized below by the type of analysis.

- **Crash Characteristics** – the following crash types were reviewed in detail to highlight potential patterns or trends in fatal, serious injury (Injury A), and pedestrian and bicycle-related crashes.
 - Two (2) fatal crashes
 - Sixteen (16) serious injury crashes
 - Eight (8) pedestrian crashes
 - Twenty-nine (29) bicycle crashes
- **Intersection Crash Rate Analysis** – The OR 62 / Whittle Avenue intersection was found to exceed the 90th percentile rate for similar facilities throughout Oregon based on the most recently available historical crash data. It is important to note that most of the crashes occurred prior to the OR 62 bypass opening. This infrastructure improvement may result in future changes to the crash patterns at Whittle Avenue and should be monitored by ODOT and the City of Medford.
- **Critical Crash Rate Analysis** – The OR 62/Delta Waters Road intersection was found to exceed the critical crash rate for the reference inventory of 4-leg, signalized intersections within the IMSA. It is important to note that, like the OR 62/Whittle Avenue intersection, most of the crashes occurred prior to the OR 62 bypass opening. This infrastructure improvement may result in future changes to the crash patterns at Delta Waters Road and should be monitored by ODOT and the City of Medford.
- **Excess Proportion of Specific Crash Types Analysis** – Seven intersections were identified with excess proportions of specific crash types. The intersections, crash types, and probability of future occurrences are summarized below:

- OR 99 / Table Rock – fixed-object (99%)
 - OR 62-OR 238 / OR 99-Court St-N Riverside Av – angle (100%)/fixed-object (99%)
 - OR 62 / I-5 Northbound Ramp Terminal – turning movement (99%)
 - Biddle Road / Hilton Court – Angle (97%)
 - OR 62 / Bullock Road-Poplar Drive – backing (99%)/fixed-object (99%)
 - OR 62 / Whittle Avenue – turning movement (98%)
 - OR 62 / Delta Waters Road – angle (95%)/backing (98%)
- **Segment Crash Analysis** – 15 segments within the IMSA have crash rates that currently exceed the 90th percentile rate for similar facilities throughout Oregon. The segments include:
- OR 99 from Table Rock Road to OR 62
 - OR 62 from OR 99 to RVM Main Entrance
 - OR 62 from Target Entrance to I-5 SB Ramp Terminal
 - I-5 SB Off-Ramp from SB Off-Ramp Gore to OR 62
 - Northerly SB On-Ramp from OR 62 to Northerly SB On-Ramp Gore
 - I-5 NB Off-Ramp from NB Off-Ramp Gore to OR 62
 - Southerly NB On-Ramp from OR 62 to Southerly NB On-Ramp Gore
 - OR 62 from I-5 SB Ramp Terminal to I-5 NB Ramp Terminal
 - OR 62 from I-5 NB Ramp Terminal to Biddle Road Jug handle (north)
 - Biddle Road from north of Morrow Road to Biddle Road Jug handle
 - OR 62 from Biddle Road Jug handle (north) to Fred Meyer Entrance
 - OR 62 from Fred Meyer Entrance to Bullock Road-Poplar Drive
 - OR 62 from Bullock Road-Poplar Drive to Sky Park Drive
 - OR 62 from Sky Park Drive to Whittle Avenue
 - OR 62 from Whittle Avenue to Delta Waters Road